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I, KIM MARSHALL, MANAGER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 1419 for a patent by WORLDLINGO. COM PTY LTD filed on 05 July 1999.



WITNESS my hand this
Second day of September 1999

A handwritten signature in cursive script, appearing to read "Kim Marshall".

KIM MARSHALL
MANAGER EXAMINATION SUPPORT
AND SALES

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AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention Title: "COMMUNICATION PROCESSING SYSTEM"

The invention is described in the following statement:

COMMUNICATION PROCESSING SYSTEM

This invention relates to a system for automatic processing of foreign language communication made over a network, such as electronic mail. In particular, it relates to a system that identifies that a translation of the communication is required and the type of translation required. The system may also apply the translation automatically.

BACKGROUND TO THE INVENTION

The Internet has become a truly global medium for communication and commerce. A person can access the Internet from virtually anywhere in the world providing they have access to, at least, a personal computer and a communication network. The networks are conventionally provided by cable, such as telephone connections, although wireless networks are developing. The advent of the World Wide Web (the Web) has extended the Internet to a low cost, global, broadcast medium. A superficial surf of the Web identifies a vast array of web sites in almost every language on the planet.

Although the Web has opened opportunities for electronic commerce and communication, it has not overcome the barrier of language. A business offering products for sale over the Internet is faced with the difficulty of a significant proportion of the potential market using a foreign language. Although many people speak English as a second language, there can be

problems caused by non-English speakers misunderstanding the message presented on a web page.

One way of overcoming the aforementioned problem is to provide mirror sites in a range of common languages. While this incurs a cost overhead, it is economic compared to the cost of lost sales from lack of understanding of a product offering.

Web pages in multiple languages can overcome the problem of offering a product or service for sale, but it does not solve the problem of communication, such as negotiating the sale. Many web pages encourage a purchaser to email the owner of the web page to seek information or make purchases. If the native language of the purchaser is different from the seller, the language barrier may again lead to a lost sale.

The language barrier in email is also faced by multinational corporations. Email is fast becoming the most common form of medium security corporate communication. However, significant problems are encountered if the email is not in the native language of the recipient. The recipient is faced with the options of either trying to glean a meaning from a few recognised words or facing a delay, and potentially significant cost, while an accurate translation is made. The speed and convenience of email is lost if the email needs to be translated before it can be read.

A solution to aspects of the problem described above has been proposed by Boucher et al in United States Patent number 5884246. In the Boucher approach the address of a translation site is concatenated onto the

destination address of the communication so that the communication is delivered to the translation site. The communication is translated at the translation site and the translated communication is forwarded to the recipient at the destination address. The Boucher approach has three problems. Firstly, it is not transparent to the sender which may be a significant barrier in an electronic commerce environment. Secondly, it is language specific for each communication because the sender specifies the translation site rather than the recipient selecting a desired translation. Thirdly, the Boucher approach fails if no suitable electronic translation is available.

OBJECT OF THE INVENTION

It is an object of the invention to provide a system for automatic processing of electronic communication.

Other objects will be evident from the following discussion.

SUMMARY OF THE INVENTION

In one form, although it need not be the only, or indeed the broadest form, the invention resides in a method for automatic processing of electronic communication including the steps of:

- sending a communication from a sender in a first language;
- identifying the communication as a foreign language communication;
- optionally applying a quotation programme to the communication to

generate a quotation for human translation of the communication to a second language;

optionally applying a translation programme to the communication to generate a machine translation of the communication to the second

5 language; and

forwarding the communication, optional machine translation and optional quotation to a recipient.

In a further form, the method includes the steps of:

the recipient formulating a response to the communication;

10 identifying the response as a native language response to the foreign language communication;

optionally applying a machine translation programme to the native language communication to generate a foreign language communication; and

15 forwarding the foreign language communication to the sender.

In preference the sender directs communication to the recipients email address from the recipients foreign language web page and the server identifies that the communication has come from the foreign language web page and is therefore likely to be in a foreign language.

20 The translation programme is suitably resident on a translation server although it could be resident on some other special purpose server.

The foreign language communication, native language communication and quotation are preferably sent to the recipient by email although they

could be stored at a web site for access by the recipient. In the later case it would be convenient to control access to a users email with suitable security protocols.

In a yet further form, the invention resides in a system for automatic processing of a foreign language communication, the system comprising:

- means for sending a communication over a communications network;
- means for receiving said communication and identifying said communication as a foreign language communication;
- means for generating a quotation for human translation of said foreign language communication to a second language;
- means for generating a machine translation of the foreign language communication to the second language;
- means for forwarding said communication, said machine translation and said quotation to an intended recipient; and
- means for said intended recipient to receive said communication, said machine translation and said quotation.

Suitably the means for sending and receiving the communication are personal computers. The remaining means are suitably network server computers.

There may be a single server performing all functions or multiple servers, each performing one or more functions.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention are described with reference to the following figures in which:

FIG 1 is a schematic of a first embodiment of the invention;

5 FIG 2 is a flow chart of an automatic communication processing system;

FIG 3 is a flow chart of a human translation option;

FIG 4 is a flow chart of a communication sending system; and

FIG 5 is a flow chart of the quotation system.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

For ease of explanation, the preferred embodiment is explained in terms of email. It will be appreciated that the translation system is not limited to email but is applicable to any form of electronic communication across a network.

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Referring to FIG 1 there is shown a block schematic of the elements of an automatic processing system for electronic communications that may require translation. A person trading or communicating over the Internet has, for example, a web site resident on a web server 1. The person has the web pages of the web site translated to a number of foreign languages to produce foreign language web pages 2. These pages may be resident on the same server, a number of different servers, or on a number of mirror sites.

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A sender (purchaser in a commerce situation) 3 accesses the web

pages 2 through the Internet 4. The web pages have an email address useable by the sender 3 to send a communication 5 to a recipient (seller in the commerce situation) 6. The recipient 6 will normally be the owner of the web pages 2. Also connected to the Internet is a mail server 7 that
5 processes communications 5 between the sender 2 and recipient 6. The mail server 7 may intercept the communication 5 or may receive the communication directly.

The mail server 7 processes the communication 5 and passes the communication to a translation server 8 for translation, if required. The
10 translation server 8 generates and returns a quotation 9 for human translation and optionally produces a machine translated communication 10. The mail server 7 forwards the communication 5, the quotation 9, and the machine translated communication 10, if it exists, to the recipient 6.

The mail server may intercept the communication by analysing the
15 email address. Alternatively, the communication may have been sent directly to the mail server or autoforwarded from some other mail server that performed a preliminary analysis.

Although FIG 1 shows the mail server 7 and translation server 8 as separate items, it will be appreciated that both functions can be provided on
20 a single computer. Similarly, the quotation for human translation can be generated at the mail server or the translation server or a separate quotation server.

A web page is only one example of a means of disseminating an

email address. A person may print a different business card for each country in which they do business. Each card could have a different email address so that communication from the recipient of the card is automatically directed to the translation server for translation. Similarly, email addresses can be included on fliers, brochures, catalogues, CDs, lists, in newsgroups, listservs, etc.

The system is not limited to processing email communications but can be applied to any electronic communication transmitted across an internet, intranet or extranet. For example, the system can be employed with a media clipping service to process foreign language news items. The system may also be employed when researching text based documents held in foreign language electronic libraries.

Referring to the flow chart of FIG 2, the first step 11 is to identify the foreign language communication. The process is initiated when a sender 3 sends communication 5 to the recipient 6. The mail server 7 receives the communication 5 and determines if translation is required 12. This can be achieved by any suitable method. In one embodiment, each foreign language web site is allocated a specific email address that identifies the language of the sender. For example, the email address of the recipient may be jb@myco.com and the email address at the Spanish language site may be jb.spanish.myco@multimail.com or similar. Additional information for defining the required the translation can also be included in the email address. For example, a communication in Spanish relating to medical issues could be

directed to jb.medical.spanish.myco@multimail.com.

Alternatively, all email addresses may be the same and the mail server 7 may parse all communications for foreign language identifiers. Suitable identifiers can include common words or symbol combinations. The originating site could automatically insert a unique identify to indicate the language of the originating system. Other identification methods will be evident to persons skilled in the art.

It will be appreciated that the identification process is applicable to other forms of communication than merely email. As mentioned above, a user may receive electronic copies of news articles from a clipping service. If some of these articles are in a foreign language they can be automatically identified and forwarded to the next phase of the translation system. The communication can be in virtually any form including sound, video, animation, sign language, etc.

Once a foreign language communication has been identified, the filter 12 determines if translation is required. Some recipients may only require translation of some languages. For example, a recipient may be fluent in English and German and therefore not require translation of these languages. If translation is not required the communication is forwarded directly to the recipient 6.

If translation is required a machine translation 14 is performed, if a suitable programme is available. Any suitable machine translation programme can be used. The inventor envisages that a range of translation

programmes will be stored on the translation server 8 or a number of dispersed translation servers. An expert system may be employed to "learn" the best translator for a class of communications.

The inventor envisages that there may be multiple translation servers.

5 For example, the best site for translating Japanese scientific papers may be at Tokyo University. The translation system would forward the communication to the Tokyo translation site for translation of scientific papers in Japanese. Popular translators could be mirrored in a number of countries.

10 In most cases a quotation 9 for human translation is determined. However, in some cases, a recipient 6 may not require a quote for a human translation. A filter 15 checks for situations in which a quote for human translation is not required. This may be according to standard instructions by some recipients. In some cases the available machine translation may be of
15 very high integrity, thereby rendering human translation redundant. Even when good machine translation programmes are available, a human translation may be required for sensitive communications. If a quotation 9 is not required, the original communication 5 and the machine translation 11 are forwarded 16 to the recipient 6.

20 The inventor envisages that an expert system could be employed to "learn" the situations in which a given recipient requires human translation. For example, the recipient could define key words such as, order, sale, a name, etc that would automatically be human translated. Alternatively,

communications including the key word receive priority processing with the quotation including highlighting of the presence of the key words.

A quotation 9 is calculated by quotation system 17. In one embodiment this is an automated system that calculates a quotation based on parameters such as the language, number of words and complexity. Alternatively, a human translator can prepare a quotation manually. The quotation system is explained in more detail below with reference to FIG 5.

The foreign language communication 5, machine translation 11 and quotation 9 are forwarded 18 to the recipient 6. This may occur by email to the recipient or alternatively, the material may be stored at a secure web site accessible by the recipient. In the later case, suitable security protocols are employed.

The system from the point of view of the recipient is as shown in FIG 3. The process is initiated 20 when the recipient reads the machine translation 11. The recipient decides 21 if a human translation is required. If the machine translation is decipherable a human translation will not be required and the recipient will decide 22 if a response is required. If no response is required the system terminates. If a response is required the recipient prepares and sends a response 23. Handling of the response is described below with reference to FIG 4.

The recipient may decide that a human translation is required and consider 24 the provided quotation 9. If no quote has been provided the recipient can request a quote from the quotation system 17. If the quote is

not accepted the recipient proceeds to decide if a response is required based on the information at hand. If it is accepted the communication is passed to a human translator 25 and the translation is prepared and forwarded 26 to the recipient 6 to determine if a response is required.

5 The system works in reverse to translate the response 23 of the recipient 6, as shown by the flow chart of FIG 4. The response is intercepted by the mail server 7 and the response is analysed 30 in the manner described above to determine if translation is required. If no translation is required the response is simply forwarded 31 to the sender 3. This will occur
10 if, for example, the recipient has responded in the native language of the sender or a standard response from a library of responses is used.

 If a translation is required the response is passed to the translation server 8 to determine 32 if a machine translation is possible. If machine translation is suitable the response is translated 33 and the translated
15 response is sent 34. If machine translation is not suitable, the response is passed to a human translator 35 for translation. The translated response is then forwarded 34.

 It will be appreciated that the system described above is transparent to the sender 3. This is important in an electronic commerce environment to
20 minimise barriers to a foreign language customer making a purchase from a web site. The sender (purchaser) may make an order or request information in their native language. The system process the electronic communication to provide the recipient (seller) with a machine translation

and an opportunity to accept a human translation. The seller's response is automatically translated to the native language of the purchaser, either with by machine translation or a human translation.

5 In some cases, it may be acceptable for the translation of the response from the recipient to be at the cost of the sender. In this case the process follows the flow chart of FIG 1 as if the response were an original communication.

Referring now to FIG 5, the flow chart sets out the steps in the quotation system 17. When an electronic communication is received 40 the language of the communication is determined 41 and a word count 42 is made. The language can be determined by any suitable method, such as: information in the subject line of an email; searching for key words or symbols; using third party identification programmes; autosensing; the email address, the originating site; account information maintained for the user; 15 human analysis.

Once the language is determined the translation cost per word or phrase can be calculated 43. The cost may be a flat rate for the identified language. However, it is more likely that a number of factors may modify the cost. These factors may include: the required translation quality; the 20 existence of a glossary of translated terms; the complexity of the subject matter; the existence of a translation memory storing previously translated sentences and paragraphs.

The quotation is calculated 44 as the number of words times the cost

per word:

$$Q = \text{words} \times \$/\text{word}$$

and then issued 45.

Although the above discussion has focussed on communication
5 across the Internet, it will be appreciated that the system can equally be
implemented on an intranet of a multinational corporation. An advantage of
the system is that recipients are able to sort relevant communication from
less relevant communication by receiving a timely translation. The system
also facilitates timely human translation of more important communication
10 messages.

Throughout the specification the aim has been to describe the
invention without limiting the invention to any specific combination of
features.

15 DATED this Fifth day of July 1999
WORLDLINGO.COM PTY LTD
By Their Patent Attorneys
FISHER ADAMS KELLY

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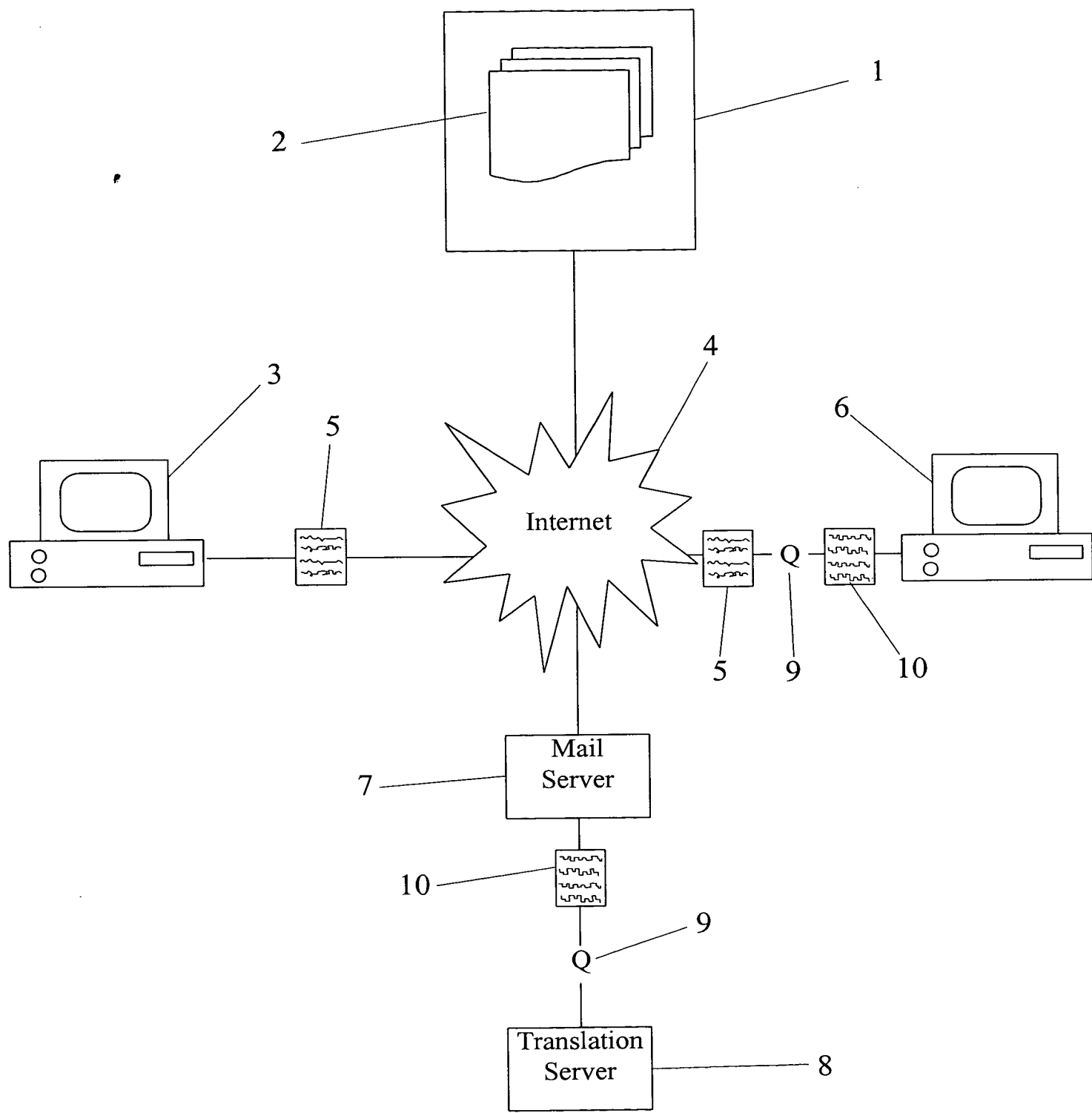


FIG 1

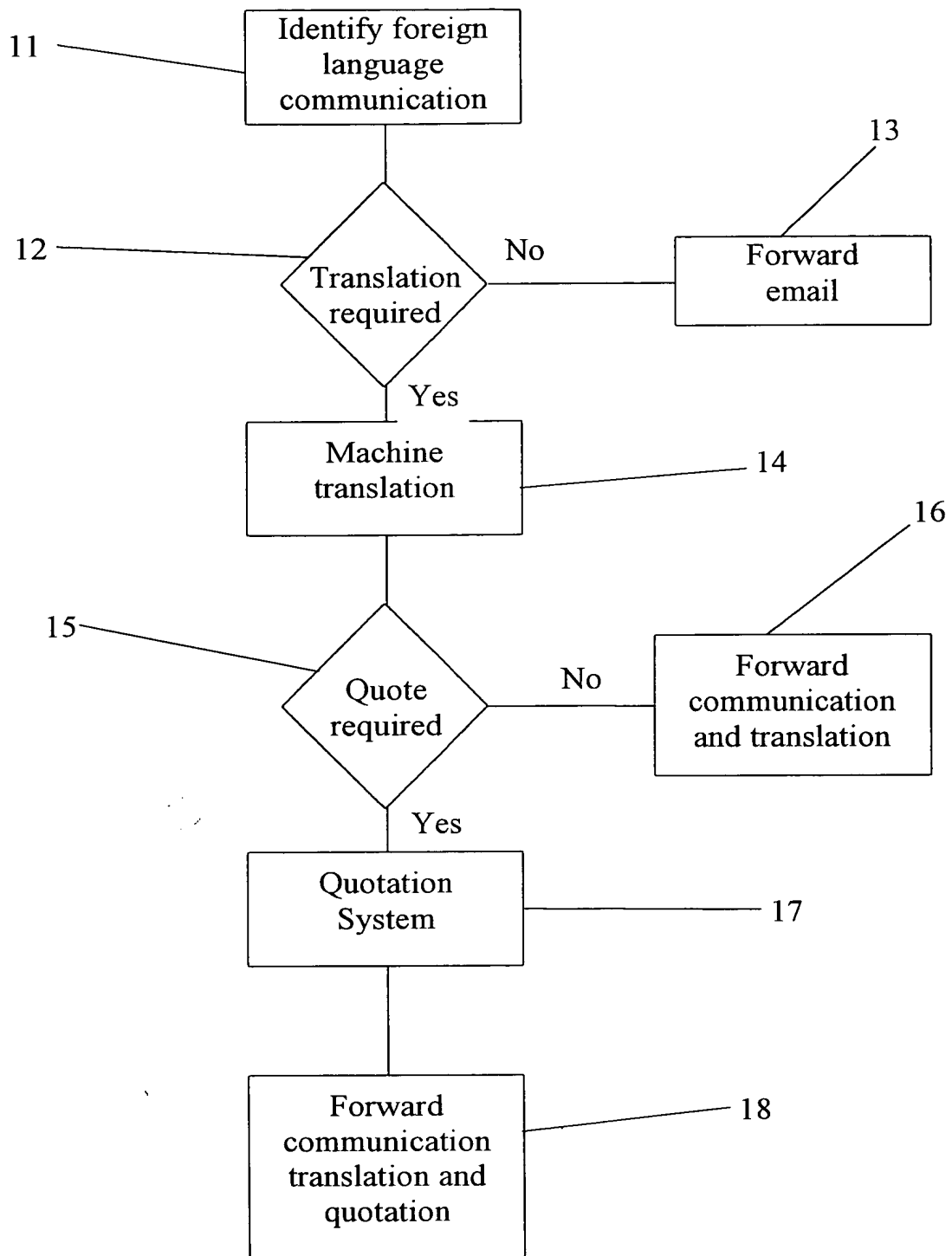


FIG 2

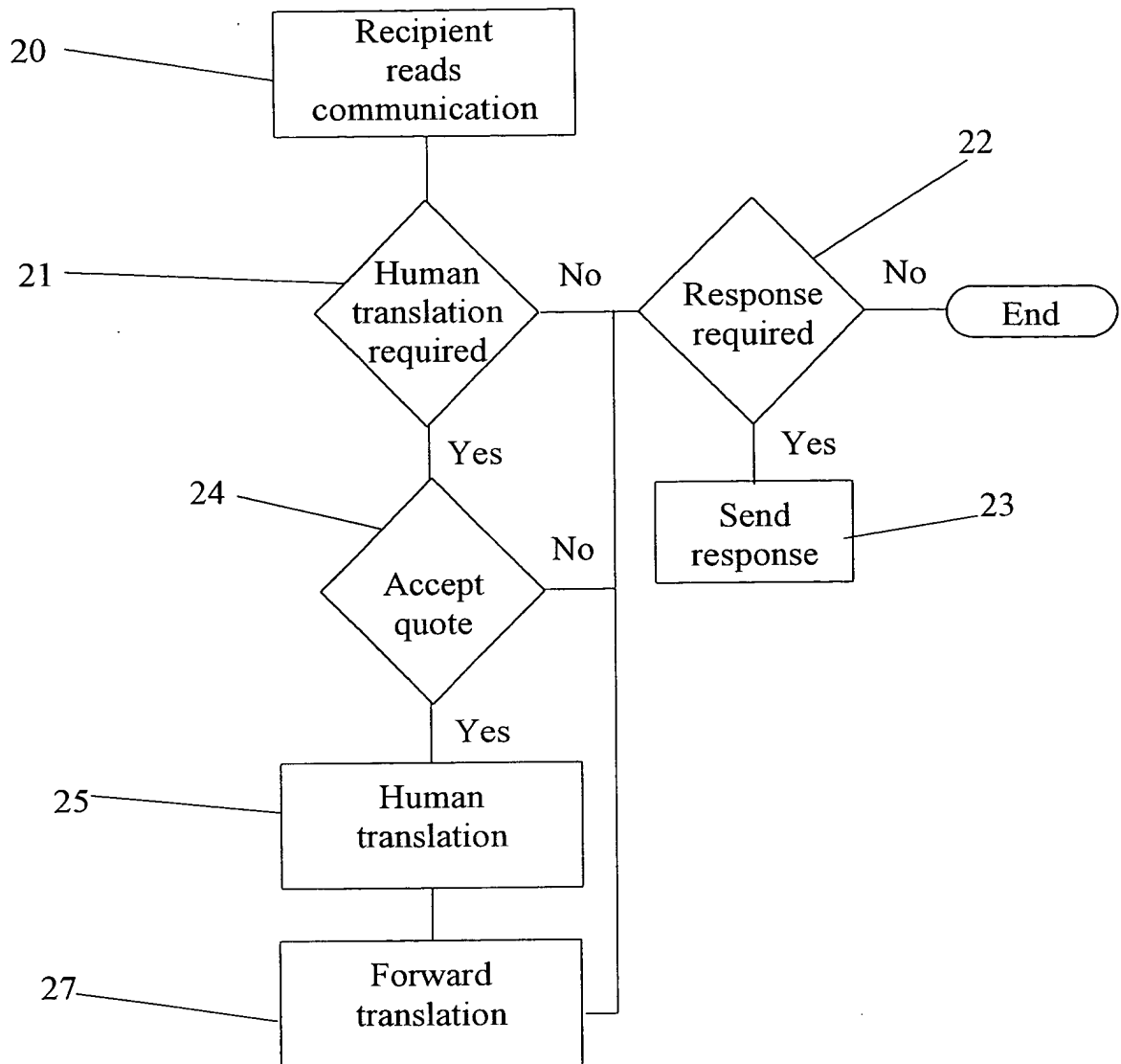


FIG 3

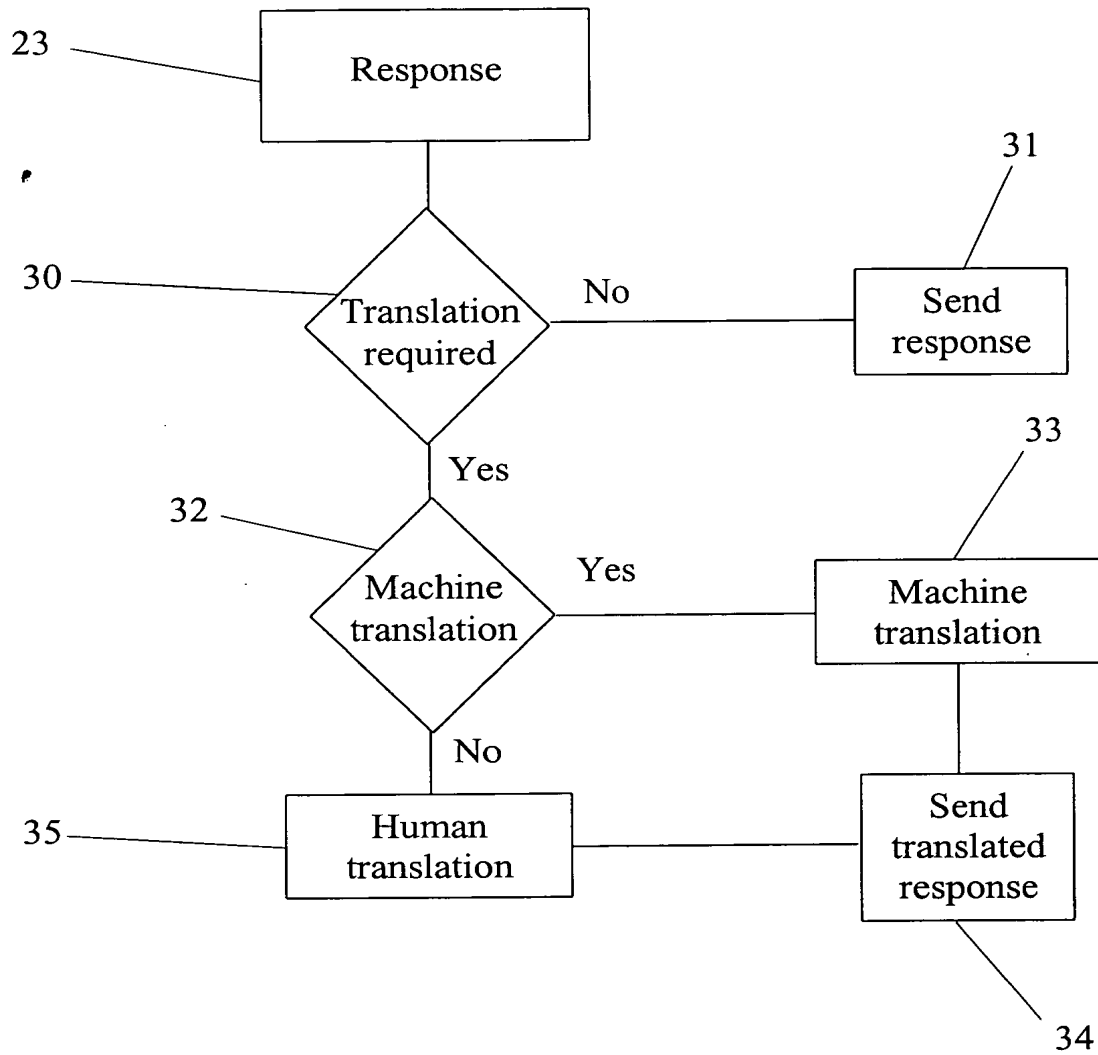


FIG 4

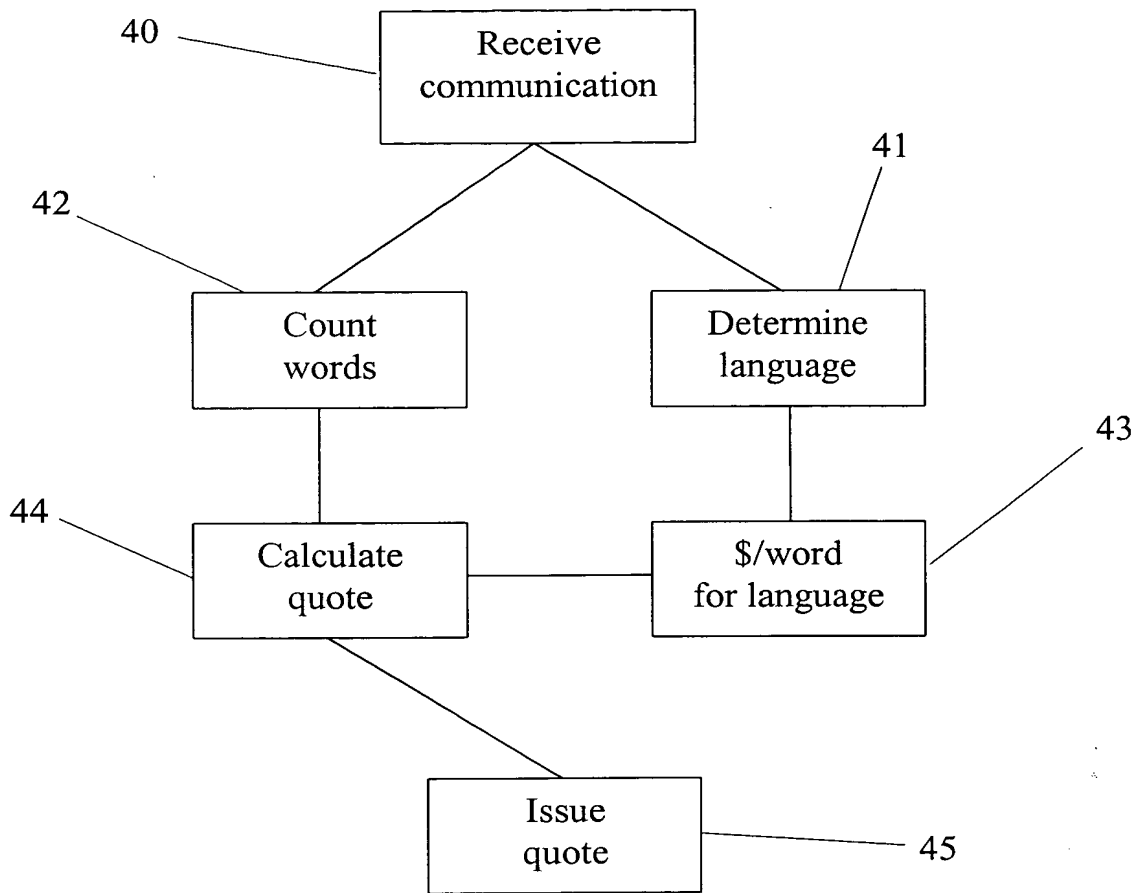


FIG 5